

# ROYAL ASTRONOMICAL SOCIETY.

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JOHN LEE, Esq., LL.D., in the Chair.

Josiah Rees, Esq., of Guildford Street, and William Pole, Esq., Professor of Civil Engineering, Elphinstone College, Bombay, were balloted for, and duly elected Fellows of the Society.

The following communications were read:—

1. The Right Ascensions of the Principal Fixed Stars, deduced from Observations made at the Observatory, Cape of Good Hope, in the Years 1832 and 1833. By Thomas Henderson, F.R.SS. L. and E., Professor of Practical Astronomy in the University of Edinburgh.

This catalogue contains the right ascensions of 174 principal fixed stars, reduced to January 1, 1833; being the same stars of which the declinations, observed by Mr. Henderson at the Cape, are published in Vol. X. of the *Memoirs*, with the addition of  $\delta$  *Eridani*,  $\alpha$  *Persei*, and  $\theta$  *Ursæ Majoris*. The observations of right ascension (with the exception of a small number) were made by the assistant-astronomer, Lieutenant William Meadows, R.N. The transit instrument, by Dollond, is 9 feet 9½ inches in focal length, with an object-glass of 5 inches in diameter. The magnifying powers employed were 88 and 132; chiefly the latter. The clock was by Hardy, having one of his scapements, and a mercurial compensation pendulum. During the period of the observations its rate was as uniform as the rates of most transit-clocks in use at observatories. The reductions of the right ascensions to January 1, 1833 (when the sun's mean longitude was  $281^{\circ}$ ), were computed from the tables in the supplements to the *Nautical Almanac* for 1832 and 1833. The coefficient of aberration was assumed to be  $20''.5$ ; and the proper motions in right ascension were taken into account, when they appeared to amount annually to  $0^s.01$  of time. The right ascensions given in the catalogue are the means of all the determinations from observations made above and below the pole without distinction. The annual precessions are calculated for the beginning of 1833, from the *Tabulæ Regiomontanæ*. The right ascensions of the present catalogue are compared with those of the same stars in the catalogues of Lacaille, Bradley, Piazz, Rumker, Johnson, and Pond (all reduced to the same epoch), and the differences exhibit the effect of the proper motion in right ascension for each of the stars respectively.

From these differences, combined with the differences of declination given in Mr. Henderson's former catalogue above referred

to, the annual proper motions of the stars in the present catalogue are obtained. A table is given, which contains such of them as appear to have proper motions not less than  $0''.1$  of arc; they amount to 35. The following are those whose annual proper motions exceed  $0''.4$ .

Star.	Total Annual Proper Motion.	Annual Proper Motion in Right Ascension (in Time).	Annual Proper Motion in Decl.
		sec.	
$\alpha$ Centauri.....	3 <sup>''</sup> 58	— 0 <sup>''</sup> 464	+ 0 <sup>''</sup> 82
$\beta$ Hydri.....	2 <sup>''</sup> 17	+ 0 <sup>''</sup> 716	+ 0 <sup>''</sup> 29
$\alpha$ Canis Majoris.....	1 <sup>''</sup> 34	— 0 <sup>''</sup> 034	— 1 <sup>''</sup> 25
$\delta$ Centauri.....	0 <sup>''</sup> 79	— 0 <sup>''</sup> 047	— 0 <sup>''</sup> 54
$\gamma$ Pavonis.....	0 <sup>''</sup> 74	+ 0 <sup>''</sup> 013	+ 0 <sup>''</sup> 73
$\epsilon$ Scorpii.....	0 <sup>''</sup> 69	— 0 <sup>''</sup> 050	— 0 <sup>''</sup> 29
$\alpha$ Phœnicis.....	0 <sup>''</sup> 47	+ 0 <sup>''</sup> 014	— 0 <sup>''</sup> 44
$\beta$ Trianguli Australis	0 <sup>''</sup> 44	— 0 <sup>''</sup> 030	— 0 <sup>''</sup> 40

II. Observations on the Appearance of the Comet of 1843, made at Cape Coast Castle, on the Coast of Africa. By G. Maclean, Esq. President of the Colony. Communicated by Captain Beaufort, R.N., Hydrographer to the Admiralty.

The comet was first seen at Cape Coast Castle on the evening of Friday, the 3d of March, at about a quarter to seven. Part of its tail only was then visible, bearing W.S.W., and making an angle of about  $70^\circ$  with the horizon, towards the south. It was of the same brightness throughout, and its breadth, which was little more than a degree, so far as it could be seen on account of both extremities being concealed by clouds, was also uniform.

March 4. This evening the whole of the comet was visible, although no nucleus could be distinguished. Its head, or what appeared to be so, almost touched the horizon, near the star *iota* in the tail of the whale; and its tail extended about  $22^\circ$  from that point in the direction of the constellation *Columba Noachi*.

March 5. Several glimpses of what appeared to be a nucleus were perceptible through the telescope of a theodolite. It appeared as a bright point, of the colour of *Venus*, but exceedingly small. Being invisible through the telescope of the sextant, distances could not be ascertained with any degree of precision.

March 6. The appearance of the comet was the same as the preceding evening. March 7, the brightness of the head and the length of the tail were much increased, the latter extending upwards of  $34^\circ$  in the direction of the constellation *Lepus*. Several stars were visible to the naked eye through the tail. On the 9th and 10th, the appearance of the comet was much the same as on the 7th; on the 17th it was visible, but the nucleus was very indistinct. The tail extended about  $43^\circ$  in the direction of *Sirius*.

March 19. This night was clear, and the outline of the comet